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EXAMINER	
RASHID, DAVID	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/806,734	LOEW, ANDREAS	
	Examiner	Art Unit	
	David P. Rashid	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *15-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *15-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

All of the examiner's suggestions presented herein below have been assumed for examination purposes, unless otherwise noted.

Amendments

1. This office action is responsive to the claim and specification amendment received on 5/29/2007. **Claims 15 – 20** are pending; **claims 1 – 14** are cancelled; **claims 15 – 20** are new.

Drawings

2. The replacement drawings were received on 5/29/2007 and are acceptable. In response to applicant's drawing amendments and remarks, the previous drawing objections are withdrawn.

Claim Objections

3. In response to applicant's claim objections amendments and remarks received on 5/29/2007, the previous claim objections are withdrawn.

Claim Rejections - 35 USC § 112

4. **Claim 16** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 16 cites determining the values of the neighboring pixels in the output image from pixels between two neighboring support points such that they have a maximum difference that is not supported by the original disclosure. Applicant's direction to the disclosure from which the feature is supported (page 4, lines 6 – 10 and the second embodiment starting on page 12, line 14 @ response page 7) also does not fully disclose the claim. Page 4, line 6 – 10 cites it being possible to use the minimum value OR the maximum value of the pixels lying between two support points for reproduction in the output image, but does not suggest using both the minimum value AND the maximum value as would be needed such that the two adjacent pixels in the output image have a maximum difference (nor any suggestion of creating a maximum difference value from the minimum value and maximum value). The second embodiment starting on page 12, line 14 only mentions a "maximum use" (while not even disclosing a minimum selection) when citing that the number of delay circuits and comparators or adders and multipliers is dependent on the expected maximum distance between two successive support points. The second embodiment does not suggest in any way the full broad scope of claim 16.

Any other mention of the words "maximum" and "minimum" needed such that the two adjacent output pixels achieve a maximum difference (since maximum difference itself is not directly disclosed) suggests that the original disclosure only supports the capability of only selecting a maximum or minimum value between two support points – which could mean selecting all maximum (or minimum) values between each support point.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. **Claims 15** and **17 - 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Scott et al. (US 5,097,518 A) in view of Gove et al. (US 5,530,482 A).

Regarding **claim 15**, while Scott discloses a method ("ERROR DIFFUSION PIXEL SAVING REDUCTION SCALING" in FIG. 4A) for arbitrarily selectable scaling of input images (FIG. 4A, element 410) represented by pixels ("...the source image is broken into pixel groups..." in Col. 14, lines 9 – 10 wherein the image is a plurality of pixels as shown in FIG. 4A) or subpixels arranged line by line ("...horizontally..." in Col. 14, lines 8 – 11; FIG. 4A) and column by column ("...vertically..." in Col. 14, lines 8 – 11; FIG. 4A), the method comprising the steps of:

distributing a number of support points (support points being one specific individual pixel selected in each successive pixel blocks 411, 415, 421, 425 (e.g. support point being either 411_1, 411_2, or 411_3 in pixel block 411 using the OR gate 413), corresponding to a number of pixels (FIG. 4A, elements 441, 442, 443, ...) or subpixels in the output image (FIG. 4A, element 440), across the lines or columns of the input image at integer pixel or subpixel distances having a minimum variation from one another (absolute minimum variation is preserved if every n-th individual pixel within each pixel block is selected (e.g. n=1 such that support points 411_1, 415_1, 421_1, 425_1... are selected in each pixel block)), wherein the ratio of the number of support points

to the number of pixels or subpixels in a line or column of the input image correspond to the desired scaling factor (An example given in Col. 14, lines 4 – 16 for the horizontal direction in FIG. 4A wherein the desired down-scaling factor is 2.33. Selecting the support points above will preserve an absolute minimum variation such that the desired scaling factor from the sequence 3, 2, 2, 3,... is obtained. Each pixel block must end with the start of a new support point.); and

selecting (FIG. 4A, elements 413, 417, 427, 423, 433, 439...) or calculating (algorithm in FIG. 5) a pixel or subpixel value for a pixel (e.g. FIG. 4A, element 441) or subpixel in the output image from pixel (one of 411_1, 411_2, or 411_3 from pixel block 411 using OR gate) or subpixel values in the input image lying between a corresponding support point and a neighbouring support point (e.g. support point 411_1 and neighboring support point 415_1 wherein individual pixel 411_2 or 411_3 is selected using OR gate); wherein the method further comprises:

distributing the support points of two successive lines or columns such that the support points of one line or column have an offset of zero (variables "INPUT_GROUP_START_X ← 0" in FIG. 5B and "INPUT_GROUP_START_Y ← 0" in FIG. 5A both being reset to zero for each new line/column) with respect to the other line or column, Scott does not disclose distributing the support points of two successive lines or columns such that the support points of one line or column have an offset other than zero with respect to the other line or column.

Gove teaches distributing points of two successive lines or columns such that the points of one line or column have an offset other than zero with respect to the other line or column.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the support points of Scott (since all row pixels are already as taught by Gove) to be distributed between two successive lines or columns such that the support points of one line or

column have an offset other than zero with respect to the other line or column (i.e. more specifically alternating the variable INPUT_GROUP_START_X in each loop between values 0 and ½) as taught by Gove so that "...the picture quality is optimized for SLMs having staggered pixels.", Gove, Col. 2, lines 20 – 21 and because "[f]or SLMs having pixel arrays with the staggered pattern, the perceived horizontal resolution is better than with the square grid pattern.", Gove, Col. 1, lines 48 – 50.

Regarding **claim 17**, Scott discloses further comprising calculating (algorithm in FIG. 5) a pixel or subpixel value for a pixel or subpixel in the output image (FIG. 4A, element 440) from pixel or subpixel values in the input image (FIG. 4A, element 410) lying between a corresponding support point and both neighbouring support points (e.g. support point 415_1 with both neighboring support points 411_1 and 421_1 wherein individual pixels 411_3 and 415_2 are selected within their respective pixel blocks (411 and 415) with the OR gate).

Regarding **claim 18**, Scott discloses a scaling circuit (FIG. 12) for the arbitrarily selectable scaling of images (FIG. 4A; FIG. 5) represented by pixels ("...the source image is broken into pixel groups..." in Col. 14, lines 9 – 10 wherein the image is a plurality of pixels as shown in FIG. 4A) or subpixels arranged line by line ("...horizontally..." in Col. 14, lines 8 – 11; FIG. 4A) and column by column ("...vertically..." in Col. 14, lines 8 – 11; FIG. 4A), having a microprocessor (FIG. 2, element 220) , a program memory (FIG. 2, element 215) and a main memory (FIG. 2, element 215), and also input means ("microfilm scanner" in Col. 7, lines 60 – 62; FIG. 2, element 270) for scaling circuit is adapted to execute a method as claimed in one of claims 15 to 17.

Regarding **claims 19** and **20**, Scott discloses a film scanner with a drive for a control monitor ("Given the instructions received from the host computer, the scanner node controls the film library to fetch and load a specified roll of microfilm into a microfilm reader contained within the library and thereafter advance the roll to a specified frame. The scanner node then electronically scans and digitizes a gray scale microfilm image present at the specified frame into a bit-mapped bi-tonal image typically at a resolution of 300-400 dots/inch (approximately 118-157 dots/centimeter--cm), compresses the resulting bit-mapped bi-tonal image, and finally applies the compressed image as a packet with a suitable header (well known and not shown) onto local area network 15.", column 9, line 2.).

7. **Claims 16** and **17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Scott et al. (US 5,097,518 A) in view of Gove (US 5,530,482 A) and Jung (US 2003/0185451 A1).

Regarding **claim 16**, while Scott in view of Gove disclose the method of claim 15, further comprising the step of determining the values for neighboring pixels in the output image from the pixels between a corresponding support and a neighboring support point (refer to references/arguments cited in claims 15 and 17), Scott in view of Gove does not disclose such that they have a maximum difference (though Scott discloses selecting a maximum individual pixel value in each pixel block, Col. 48, lines 47 – 55).

Jung teaches taking the maximum difference (paragraph [0033]) between two adjacent blocks ("Bj" and "Bk" in FIG. 3) when determining "difference of luminance values h" (paragraph [0033]) which would require finding the minimum and maximum of each block.

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the pixel blocks of Scott in view of Gove to select individual pixels within each pixel block (other than those that are already support points) by determining the maximum difference as taught by Jung using the OR gate of Scott in view of Gove "...if one wishes to save on calculation resources.", Jung, paragraph [0033].

Regarding **claim 17**, claim 17 above under Scott in view of Gove in Section 6 recites identical features as in claim 17 in Section 7. Thus, references/arguments equivalent to those presented above for claim 17 above under Scott in view of Gove in Section are equally applicable to claim .17 in Section 7.

Response to Arguments

9. Applicant's arguments filed on 5/29/2007 with respect to **claims 15** and **16** have been respectfully and fully considered, but they are not found persuasive.

Summary of Remarks regarding **claim 15**:

Applicant argues that the prior art clearly fails to disclose the offset between support points of successive lines or columns of the claimed present principles, and also does not mention or suggest the problem of fine details disappearing when support points are selected at regular distances reoccurring across successive lines or columns. Therefore the principles as claimed in new independent claim 15 are believed to be novel in view of the cited art (@ response page 7).

Examiners Response:

As shown above, though Scott does disclose an offset of zero Scott in view of Gove disclose an offset between support points of successive lines or columns (variables "INPUT_GROUP_START_X ← 0" in FIG. 5B and "INPUT_GROUP_START_Y ← 0" in FIG. 5A of Scott both being reset to zero for each new line/column), Scott does not disclose distributing the support points of two successive lines or columns such that the support points of one line or column have an offset other than zero with respect to the other line or column.

Gove teaches distributing points of two successive lines or columns such that the points of one line or column have an offset other than zero with respect to the other line or column and it would have been obvious to one of ordinary skill in the art at the time the invention was made for the support points of Scott (since all row pixels are already as taught by Gove) to be distributed between two successive lines or columns such that the support points of one line or column have an offset other than zero with respect to the other line or column (i.e. more specifically alternating the variable INPUT_GROUP_START_X in each loop switching between values 0 and ½) as taught by Gove so that "...the picture quality is optimized for SLMs having staggered pixels.", Gove, Col. 2, lines 20 – 21 and because "[f]or SLMs having pixel arrays with the staggered pattern, the perceived horizontal resolution is better than with the square grid pattern.", Gove, Col. 1, lines 48 – 50.

Just because the prior art does not directly suggest the problem of fixing the fine details disappearing when support points are selected at regular distances reoccurring across successive lines or columns does not restrict any other possible motivation to want an offset between successive lines or columns such as the one given by Gove where it is desired to have an

horizontal offset because horizontal resolution is better with the staggered pattern as opposed to the square grid pattern as taught by Scott.

The principles as claimed in new independent claim 15 are not novel and non-obvious in view of the prior art.

Summary of Remarks regarding **claim 16**:

Applicant argues that the prior art does not disclose selecting pixel values in the input image to form an output image such that successive pixel values in the output image have the maximum possible difference (@ response page 7).

Examiners Response:

Claim 16 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement because the claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Refer to the argument above.

Claim 16 is rejected as being unpatentable over Scott in view of Gove and Jung. Jung discloses two adjacent blocks wherein a maximum difference between the two can be calculated to determine an arbitrary variable "h". A maximum difference would need to select the minimum pixel from one block and the maximum pixel from another block, which Scott in view of Gove could do using the OR gate as disclosed by Scott for each pixel block. It would have been obvious to one of ordinary skill in the art at the time the invention was made for the pixel blocks of Scott in view of Gove to select individual pixels within each pixel block (other than

those that are already support points) by determining the maximum difference as taught by Jung using the OR gate of Scott in view of Gove "...if one wishes to save on calculation resources.", Jung, paragraph [0033].

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David P. Rashid whose telephone number is (571) 270-1578. The examiner can normally be reached Monday - Friday 8:30 - 17:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Werner can be reached on (571) 272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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